

# A rare case report of fungal esophagitis combined with giant gastric ulcer in an immunocompetent patient

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## Abstract

**Rationale:** Fungal infection of gastrointestinal (GI) tract is usually seen in immunocompromised patients, but can rarely occur in immunocompetent people in whom no permissive factor is present.

**Patient concerns:** We describe a 68-year-old male immunocompetent patient presenting with simultaneous fungal esophagitis and giant gastric ulcer.

**Diagnoses:** Repeated endoscopic biopsies were taken from the giant gastric ulcer edge and base and histology demonstrated granulation tissue and pseudohyphal fungal forms.

**Interventions:** The patient was treated with fluconazole and omeprazole for 8 weeks.

**Outcomes:** After antifungal treatment with fluconazole, the patient's clinical symptoms gradually disappeared with the healing of gastric ulcer, which never recurred in this patient until 3 months after follow-up.

**Lessons:** Nonhealing gastroesophageal ulcers highlights the importance of repeated endoscopies and biopsies.

**Abbreviation:** GI = gastrointestinal tract.

**Keywords:** antifungal treatment, fungal esophagitis, fungal gastric ulcer

## 1. Introduction

Fungal infection of gastrointestinal (GI) tract is an extremely rare disease, which is usually seen in immunocompromised patients who are malnourished, broad-spectrum antibiotics recipients, on steroids, immune-suppressed or have uncontrolled diabetes

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The authors report no conflicts of interest.

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mellitus,<sup>[1–4]</sup> but can rarely occur in immunocompetent people. In the GI tract, fungal infection frequently involves the esophagitis and rarely involves the gastric ulcer.<sup>[2–4]</sup> In the case report below, we encountered an immunocompetent patient with epigastric pain, dysphagia and heartburn, which was eventually diagnosed as fungal esophagitis combined with giant gastric ulcer. After antifungal agents treatment, the patient's clinical symptoms were relieved and endoscopic observation of the gastric ulcer was healed.

## 2. Case presentation

A 68-year-old man presented with upper abdominal pain of 2 months, dysphagia and heart burn of 2 weeks duration after meals. He lost 5 kg weight in the last 2 months. The patient denied any recent use of non-steroidal anti-inflammatory drugs (NSAIDs), alcohol or anticoagulants. Gastrointestinal (GI) tract radiography in the external hospital demonstrated reflux esophagitis and giant gastric ulcer. Endoscopy revealed severe esophagitis and gastric ulcer of approximately 5 × 5 cm in size (A textual description of the gastroscopy). Initially, ulcer was considered to be malignant. However, biopsy demonstrated a gastric ulcer with no evidence of malignancy and antral biopsy revealed *Helicobacter pylori*-associated gastritis. Despite high-dose treatment with a combination of omeprazole, amoxicillin, and clarithromycin for *H pylori*, upper abdominal pain did not respond even after treatment for 14 days. On June 28, 2018, the patient was admitted to the inpatient service of Department of Gastroenterology, the First People's Hospital of Changzhou. Examination was unremarkable. Laboratory evaluation revealed mild anemia with a hemoglobin level of 118 g/L. In addition, as listed in Table 1, other laboratory data, including liver function

**Table 1****Laboratory observation upon admission.**

Characteristics	Index	Normal range
Blood		
WBC ( $\times 10^9$ /L)	4.9	4.0–10.0
RBC ( $\times 10^{12}$ /L)	3.3	3.5–5.5
HB (g/L)	118	120–155
PLT ( $\times 10^9$ /L)	266	100–300
Liver function		
ALT (u/L)	35	9–50
AST (u/L)	30	10–45
$\gamma$ -GT (u/L)	55	10–60
ALP (u/L)	120	40–125
TP (g/L)	55	60–82
ALB (g/L)	26.5	35–55
CHE (u/L)	2205	3000–8000
Serum tumor markers		
AFP (ng/mL)	6.2	0–8
CEA (ng/mL)	1.5	0–5
CA199 (U/mL)	23	0–37

$\gamma$ -GT = glutamyltranspeptidase, ALB = albumin, ALP = alkaline phosphatase, ALT = alanine transaminase, AST = aspartate aminotransferase, CHE = cholinesterase, TP = total protein.

and serum tumor markers, were normal. Thoracic and abdominal contrast-enhanced computed tomography (CT) revealed a diffuse thick walled proximal esophagus and mild thickening of

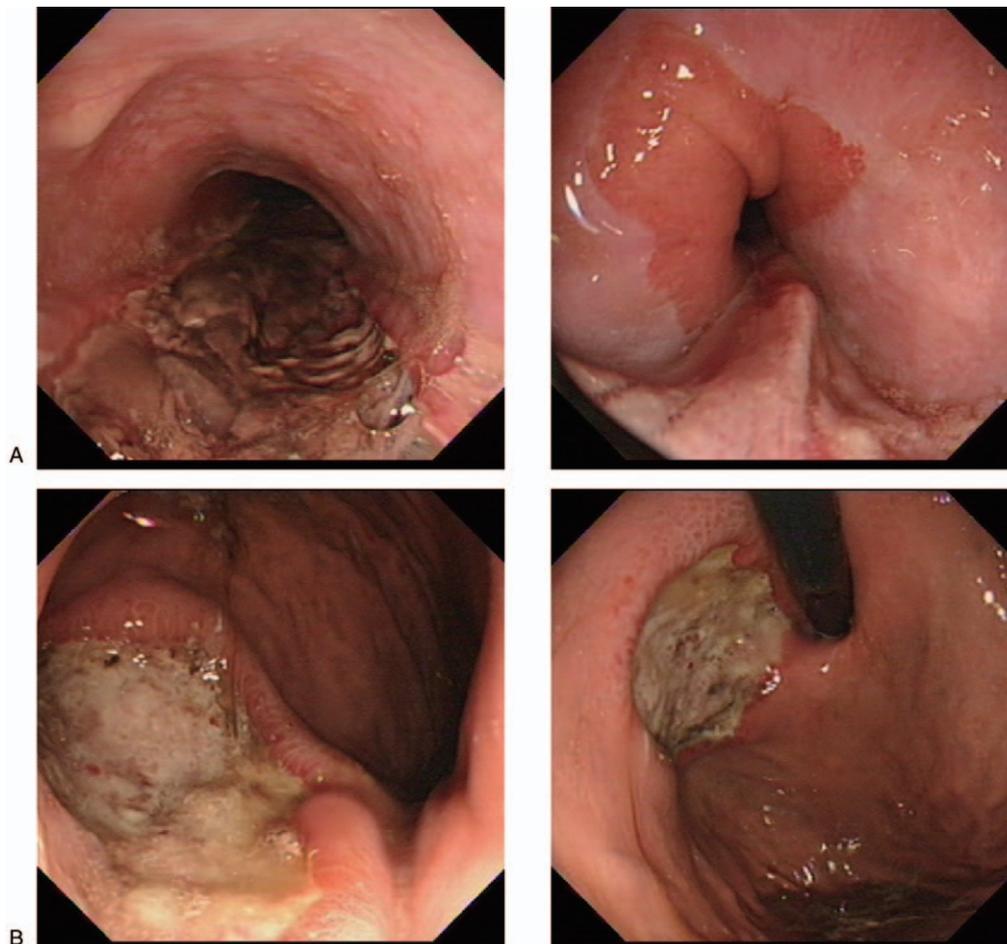
stomach wall along the lesser curvature but no typical appearances of carcinoma. Repeated upper gastrointestinal (GI) endoscopic showed severe esophagitis with extensive white patches in the middle and lower esophagus and a large oval to circular  $6 \times 6$  cm ulcer with slough at base, smooth and irregular margin in lesser curvature of stomach (Fig. 1). Repeated endoscopic biopsies were taken from antrum and from the ulcer edge and base and histology demonstrated granulation tissue and pseudo-hyphal fungal forms on Periodic acid-Schiff stain consistent with *Candida albicans* (Fig. 2), whereas antral biopsy was negative for *H. pylori*. Hence, there was no evidence of malignancy. He was treated with fluconazole for 8 weeks, thus his symptoms disappeared in 4 weeks after the institution of therapy. The patient was followed-up in our gastroenterology outpatient department. Repeated endoscopy at 3 months showed complete healing of ulcer.

### 3. Ethic statement

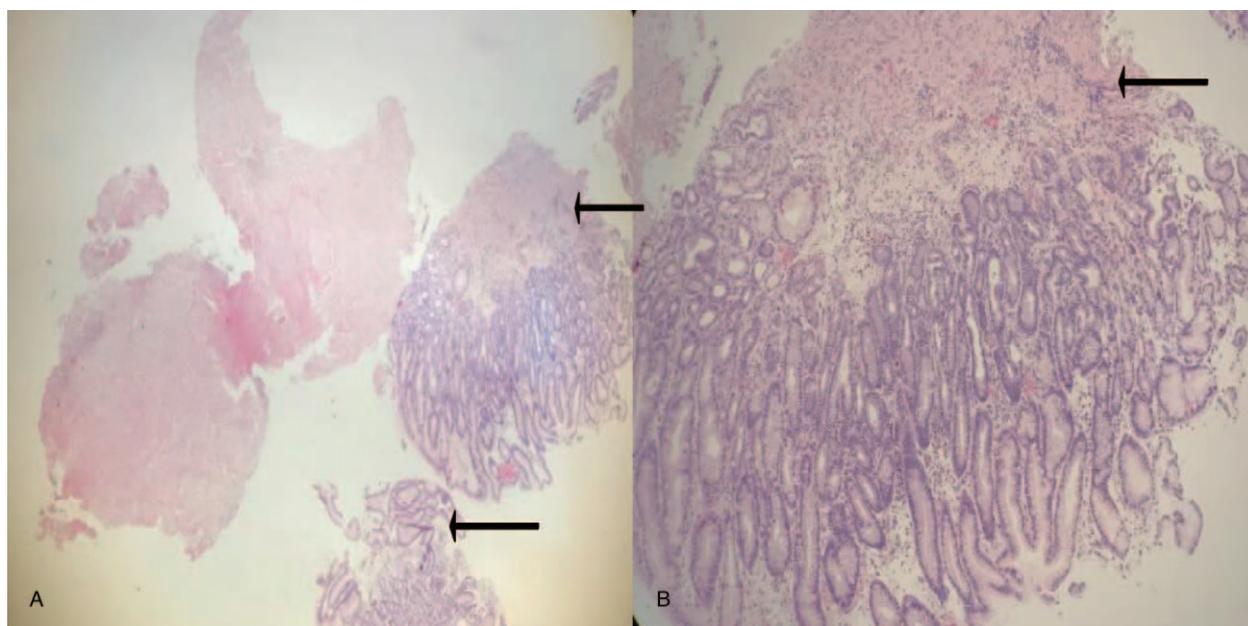
Our institutional review board was waived due to the retrospective nature of the study. Informed consent was obtained from the patient's parents for the publication of this case report.

### 4. Discussion

In the GI tract, fungal esophagitis are frequent and have documented in immunocompromised and immunocompetent



**Figure 1.** Endoscopic appearance. (A) Endoscopy showing severe esophagitis with extensive white patches in the middle and lower esophagus; (B) Endoscopy showing large ulcer with slough at base in lesser curvature of stomach.



**Figure 2.** Histological examination. Photomicrograph showing granulation tissue and pseudohyphal fungal forms (black arrow). (A) magnification, 10x; (B) magnification, 40x.

patients.<sup>[3–5]</sup> However, fungal infections of gastric ulcers are rare and have only been reported in patients who had undergone surgery for peptic ulcer disease or in an immunosuppressed state,<sup>[1–2]</sup> but infrequent in immunocompetent individuals. The patient in the case above presented with 2 simultaneous severe GI diseases: fungal esophagitis and giant gastric ulcer associated with fungal infections.

Presentation of fungal esophagitis in immunocompetent patients includes heartburn, odynophagia, dysphagia, and retrosternal discomfort, and more serious cases can cause systemic candidiasis, esophageal dysmotility, stricture, fistulae and perforation.<sup>[3–5]</sup> Typical features of endoscopic finding are the presence of mucosa in the form of white plaques, which are difficult to wash and even brushing makes the mucosa bleeds but does not wash it away.<sup>[6]</sup> Hyphae presence in the biopsy specimen is diagnostic for fungal esophagitis. Two to 6 weeks institution of anti-fungal, such as Nystatin or Fluconazole, are sufficient for clearing the fungal infection.<sup>[4]</sup>

Compared to fungal esophagitis, fungal colonization of the stomach is uncommon in immunocompetent patients.<sup>[7–8]</sup> Knoke and Benhardt<sup>[9]</sup> found that *Candida* was isolated in 6 of 2537 patients. Moreover, another a study on the presence of fungal infection as a stomach opportunistic germ in 149 patients, only 23 outpatients had gastric *Candida*.<sup>[10]</sup> However, classical appearance of fungal gastric ulcer is even rarer; only single case reports were available. Praveer et al<sup>[11]</sup> reported a patient with *Candida* gastric ulcer who was successfully treated with intravenous amphotericin for initial 3 weeks followed by oral fluconazole. However, successful treatment methods are only limited to case sharing at present, and the standard treatment method has not been established.

In this report, we have described an immunocompetent patient presenting with simultaneous fungal esophagitis and giant gastric ulcer. Despite high-dose treatment with proton pump inhibitors (PPI) and anti-*H pylori* drug, his clinical symptoms persisted. The repeated endoscopic examination showed a giant gastric ulcer

appeared to be malignant. Immunostaining of a biopsy from the ulcer edge indicated fungal infections. It is possible that antacids cause a decrease in the acidic environment in the stomach cavity, which is beneficial to the growth of fungus. This may be the reason why the size of the stomach ulcer increases from 5 × 5 cm to 6 × 6 cm. Hence, we speculated that presence of fungus in gastric ulcer impaired the course of ulcer healing as well as persistence of symptoms.<sup>[8,11]</sup> Molecular mechanisms may be attributed to low expression of vascular endothelial growth factor-A (VEGF-A) and proliferating cell nuclear antigen (PCNA).<sup>[12]</sup> After 8 weeks of antifungal treatment with fluconazole, the patient's clinical symptoms gradually disappeared with the healing of gastric ulcer, which never recurred in this patient until 3 months after follow-up.

## 5. Conclusion

To our knowledge, this is an unusual presentation of fungal esophagitis and giant gastric ulcer, which highlights the importance of repeated endoscopies and biopsies as features are not always identified initially. In addition, it should be remembered fungal infections as a cause of a nonhealing ulcer or the chance for curative therapy may be missed. In addition, because our observation is limited to 1 patient, more patients and longer follow-up are necessary to establish the standard treatment for patients with simultaneous fungal esophagitis and giant gastric ulcer.

## Author contributions

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**Writing – review & editing:** Zhang Liwen.  
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